

WHAT IS CORRECT TECHNIQUE?

A TRAINING GUIDE

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This article, originally published in “The Throws – Official Report of the European Athletic Coaches Association Congress, 1987” is an excellent analysis of the tools needed to examine technique and goes on to challenge the existence of ideal technical models. Re-printed with permission from the European Athletic Coaches Association.

An important part of a coach’s work is evaluating the technique of the athletes because good technique is necessary for achieving a good result. I have often asked myself “Which criteria shall I use as a reference when deciding whether a technique is good, not so good or poor?”.

The answer has been, “A good technique is a form of movement that does not violate biological and mechanical laws”. It must be appropriate and effective relative to the resources that the athlete has, and it must be adapted to the rules of the competition.

A good technique is also characterized by its stability (automatized), such that it is not affected by situations of stress, weather conditions.

This looks good on paper, but what is the reality that lies behind these fine words? What is the foundation that we actually use when we evaluate technique?

1. An ideal technique from a textbook? (Cookbook technique).
2. Evaluation according to ones own experience as an athlete and coach?
3. Norms from theoretical evaluations by coaches and from professional journals?
4. A copy of the world record holders technique?
5. A statistical norm of the technique built on data or “ten-best” criteria?
6. Scientific data based on biomechanical analyses?

As we see, there are many possibilities that a coach consciously or unconsciously uses, or can use, when evaluating technique. I believe that we who are coaches too often take the easy way out when we have postulated with the weight of experts that, “this is wrong”, “this is right”.

Which norms are we using then? A coach that has a norm to work from is clearly better than one who does not have a well thought out norm at all. As long as all changes of the technique have a positive effect on the result, this is fine. The problems come in the instant that deviations (errors) from the norm are discovered, corrected, and the result is worse.

Then it must be natural to ask oneself, “Do all deviations from the norm have a negative effect on the result or must one accept an individualized technical solution (style)”. It is my opinion that many so-called “deviations” are not errors but a technique adapted to the individual. This is certainly one of the most difficult questions that a coach faces in his or her work.

Are there actually any criteria for evaluating what is “wrong” relative to a norm, or personal discrepancy, and what one should not correct?

I believe that this is a very complicated question to answer, but some aspects are certainly useful to bring up and discuss. I think that it is then natural to begin with the character of the event and evaluate technique according to the demands one faces for a maximal exploitation of the body during the competition.

In general, one can differentiate between three types of events:

1. Jumping (acyclic technique)
2. Throwing (acyclic technique)
3. Running (cyclic technique)

We are concerned here with throwing.

What is involved here is accelerating the body and a piece of equipment up to the greatest possible speed before letting go of the object out along a certain path with the greatest possible exit speed (shot-put, hammer, discus, and javelin).

For this group, a good technique is characterized by the athlete using his or her energy resources on the body or piece of equipment in:

- the right instant
- with the greatest possible impulse (force x time) and;
- in the right direction.

A good result is not always proof that a technique is good or without errors. Many compensate for a poor technique with great strength, good joint mobility, great endurance and the like. In other words, a good individualized adaptation. Many

perform a big technical deviation early in the event, for example during a throw, but “correct” or compensate for this deviation later in the throw by performing a movement that, by some coaches in a one-sided observation, would be viewed and treated as a mistake.

Questions the coach must answer

The technique is generally directed towards two important goals:

1. Greatest possible “initial speed” of the body or piece of equipment
2. Optimal angle of release.

If one has clear reference points within this framework, then the possibilities for individual adaptations are very few, as even small deviations can result in great gains in results.

In relation to this, a coach must ask herself of himself the following questions:

1. Is the technical deviation such that the path of travel is changed in such a way that the release speed is both longer and maximal (optimal)?

If effort is applied over a short range, it can negatively affect the release speed. For example, this is the situation if one does not hold the throwing arm straight at the end of the discus throw (short arm, less speed for the piece of equipment). A long distance over which the effort is applied can also have a negative effect. For example, if one bends down too low in the shot-put. Then one will have an unfavorable angle in the joints when the effort is made such that one is able to fully exploit the extensor muscles (of course it may also be the case that the athlete has insufficient strength to bend down).

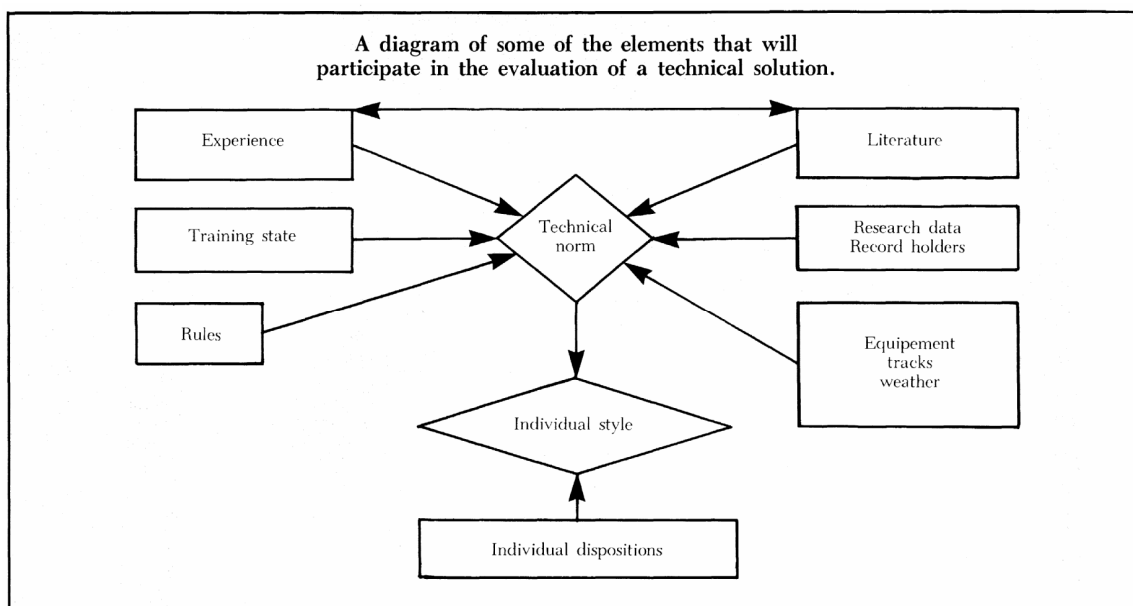
2. Is the discrepancy from accepted technique such that it affects pre-tensing of the extensor muscle system?

The total production of force is dependent on the greatest possible pre-tensing of the muscles one chiefly uses in the throw. This is achieved by braking the speed of the body, against its direction of travel (stem-effect). This pre-tensing also positively affects the production of force by increasing the reflex stretch-impulses such that the extension starts faster. These conditions, together with an optimal range over which the effort is made, can give a significant increase of the initial speed in a throw or jump with good possibilities for the greatest possible release speed of either the body or the piece of equipment. Nevertheless, the prerequisites are that one has an even extension movement, without stops and without too great changes in direction.

3. Is the discrepancy from accepted technique such that it affects the beginning, direction, path and intensity of the muscular effort?

Evaluation in these areas is difficult to judge. In fact, here there is one principal criterion that is decisive: highest possible release speed. This is related to the duration of the effort and the muscular effort. In other words: if the path over which the effort is applied is the same, the one with the greater intensity of effort will travel the distance faster.

The instant of the effort will have great effects on the release angle during throwing (for example, when one lets go of the piece of equipment (too soon or too late)).



There are no ideal models

To begin with, a coach must have a norm from which to evaluate technical solutions. But one must be aware of which criteria one builds these norms on and their limitations. The greatest problem for the coach will be to evaluate whether a deviation from the ideal model is an “error” or an individual adaptation because:

1. There is no scientifically founded ideal technique that suits everyone. Only analyses of top results can give an indication about what can be somewhat correct (path over which the effort is applied, speeds, directions, muscular efforts, and the like).
2. The individual prerequisites that the individual athlete has are very difficult to evaluate.

Therefore, one can conclude that currently there are ideal models and no possibilities of evaluating individual dispositions for a certain event. Therefore all “correcting or errors” must be done with caution, and be adapted to the individual’s own characteristics as far as possible. Absolute postulations that “this is wrong and “this is right” are only revealing the coaches lack of insight into technical evaluation.

In closing, I would like to conclude by mentioning that a good coach should have a great deal of knowledge about the demands of that the event to be developed . In particular, he/she should have good insight into the theory of movement or kinesiology. In addition, there should be good training in the observation and analysis of movement. What is more, they must also have knowledge of pedagogy so that they are able to transfer observations to an individually adapted technique.